HASSELBLAD

500C

HASSELBLAD

The principle of the single lens reflex camera.

A. Ground glass screen
B. Film
C. Mirror
D. Lens

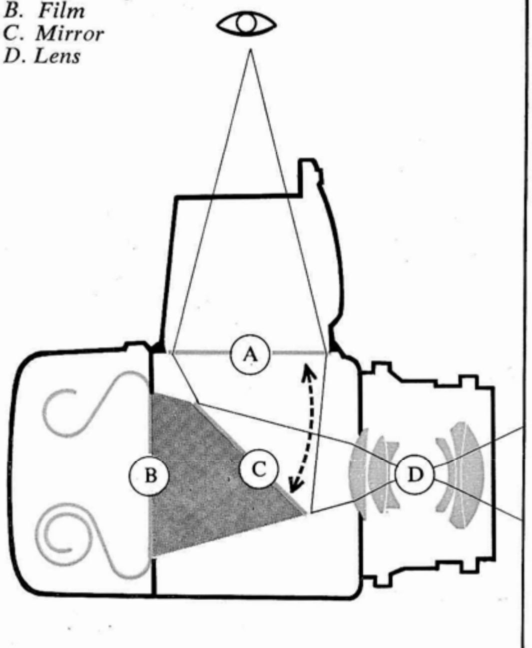


Fig. 1

These instructions will be of great help to the new owner. Read them carefully with the camera in front of you. An instruction manual is somewhat like a textbook, and it must be technically correct. The possibilities of the Hasselblad camera have been explained here in an interesting, factual way. The Hasselblad is a strongly-constructed camera and, like any other precision instrument, it has to be properly understood and mastered if the best picture results are desired. And this camera will produce them when you learn how to use it. So read these instructions carefully — and get your reward in better pictures!

A Quick Lesson Before You Read Further

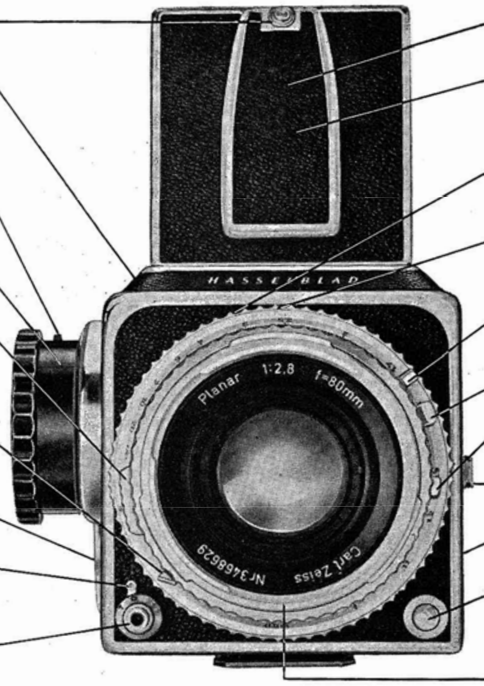
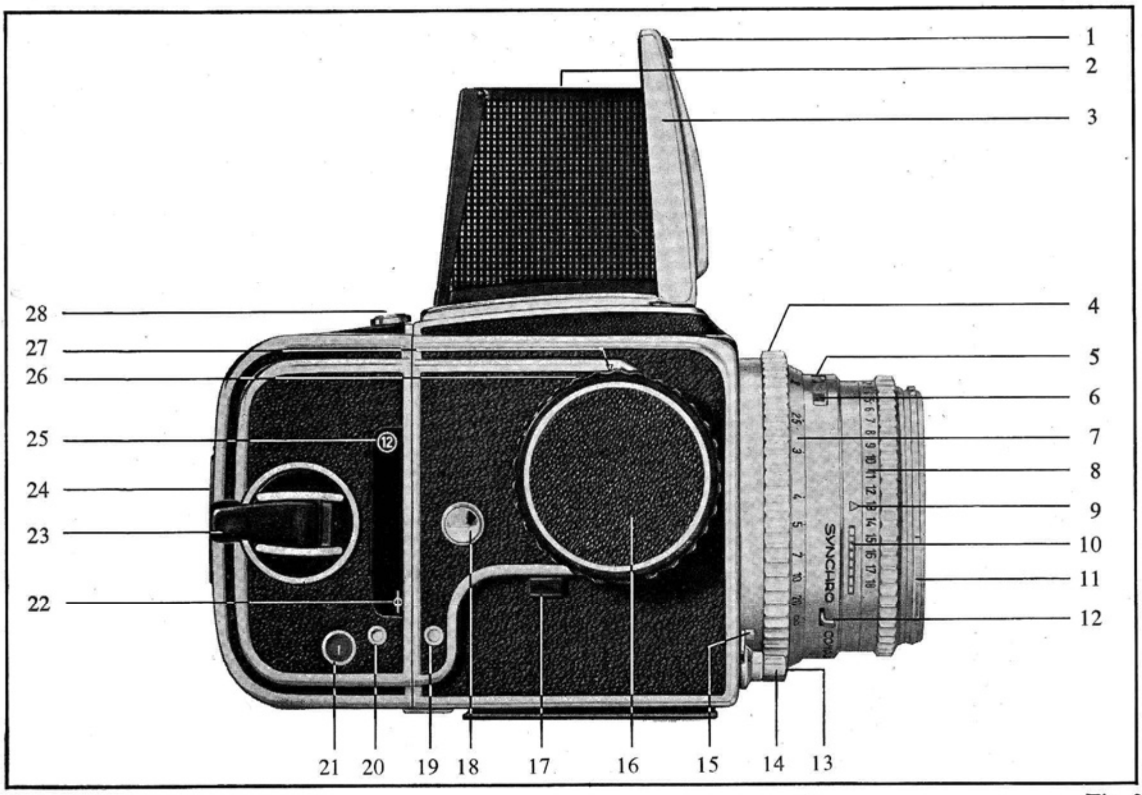


Fig. 2



3

Fig. 3

1. Catch for focusing hood and fine-focusing magnifier
2. Fine-focusing magnifier
3. Focusing hood
4. Focusing ring
5. Central index (black line*) for setting time, aperture and distance
6. Movable depth-of-field indicator (red pointers)
7. Distance scale
8. Exposure value scale (red figures)
9. Exposure value index (red triangle)
10. Catch for disengaging aperture ring from speed ring (also functions as exposure value catch)
11. Inner and outer bayonet fittings
12. Stopping-down control catch
13. Threaded socket for cable release
14. Release button
15. Catch for time exposures
16. Knob for film transport and shutter tensioning
17. Speed-up release
18. Carrying-strap button (one on each side)
19. Exposure signal window
20. Film-transport signal window
21. Film counter
22. Film plane marking
23. Rapid-winding crank
24. Film indicator window
25. Magazine type number
26. Knob-removal catch
27. Knob-positioning index (red triangle)
28. Magazine catch
29. Diaphragm ring with aperture scale
30. Synchronizer contact for flash
31. Flash synchronization and self-timer lever
32. Catch for lever (31)
33. Synchronizer contact for flash
34. Grip ring for setting time, aperture and exposure value
35. Button for lens-mount catch
36. Tripod plate
37. Synchronizer contact for auxiliary shutter
38. Cable-hook hole
39. Accessory socket
40. Magazine hooks
41. Magazine slide
42. Spool holder key
43. Film loading indicator (white to red)

**White line on black-barreled lenses*

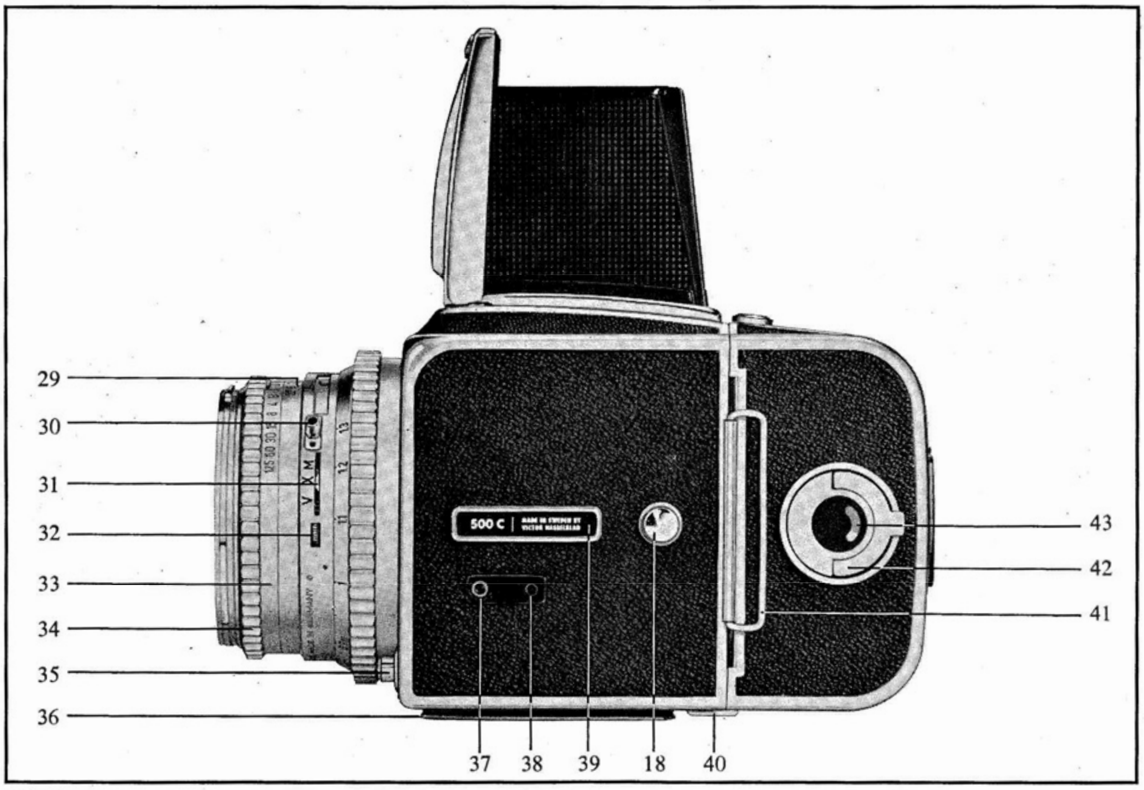


Fig. 4

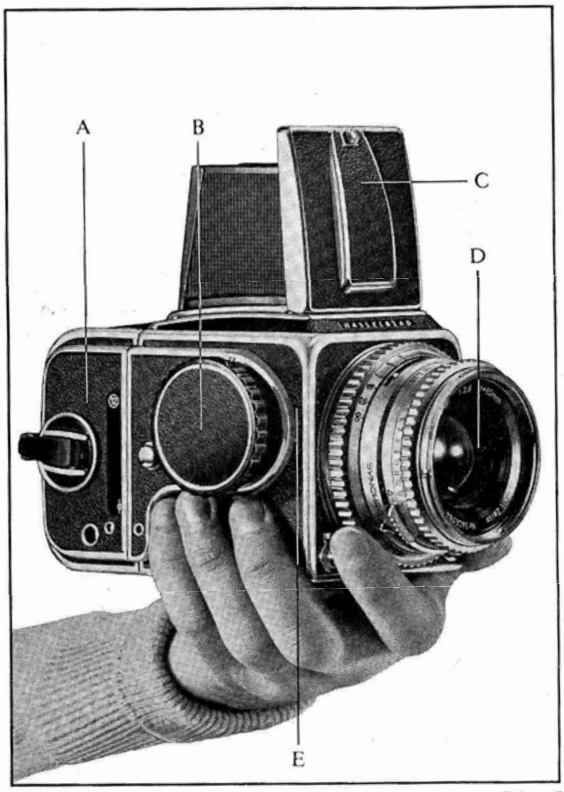


Fig. 5

LEFT-HAND GRIP

Fig. 5 shows the best way of holding the Hasselblad 500C when photographing. Hold the camera in the left hand, with the left index finger on the release button. The right hand is thus free to carry out the other movements, such as film-winding, focusing, etc.

CAMERA: MAIN COMPONENTS

Fig. 5 also shows the camera's main components. Attached to the camera body (E) are: the film magazine (A); knob for winding the film and tensioning the shutter (B); focusing hood, with it fine-focusing magnifier (C); and the lens (D). These interchangeable components, accessory brackets and fittings of the camera are treated separately in different sections of this manual.

FOCUSING HOOD

The focusing hood (3, Fig. 6) is a ground glass screen finder which excludes extraneous light from the ground glass screen. To open the hood, move the catch (1) to the right, and the four "walls" of the hood spring into position automatically. To check image sharpness, use the fine-focusing magnifier; this springs into the viewing position when catch (1) is moved again to the right. To close the hood, first fold down the magnifier until it clicks into the closed position, then fold down the side walls over the ground glass screen, then the back wall and finally the cover. When changing finders, first remove the film magazine, then slide out the finder backwards from the grooves.

THE LENS

As with all the other Hasselblad lenses, the Planar f. 2.8/80 mm lens has a built-in Synchro-Compur between-lens shutter with automatic diaphragm, exposure value scale (EVS), automatic depth-of-field indicator, fully synchronized M and X flash settings, and V self-timer setting. The lens is attached to the camera body by a bayonet fitting.

Diaphragm

The desired aperture is made with the diaphragm ring (29, Fig. 7). This ring is coupled with the speed ring (33), and they are maneuvered by the grip ring (34). The diaphragm ring can be disengaged to change the size of the aperture without altering the shutter speed already set. When the finger hold of the coupling (10), which also functions as the exposure-value catch, is pressed backwards the diaphragm ring is disengaged and it can then be turned until the desired aperture is opposite the central index (5). Stopping-down to the preset aperture takes place automatically just before an exposure is made. So focusing is normally done with the diaphragm wide open. However, the working effect (depth of field, etc.) of the aperture chosen can be studied by depressing the catch (12); this moves the diaphragm down to the preset aperture. The diaphragm is returned to the widest aperture either by the knob (16) when retensioning the mechanism after an exposure, or by turning the diaphragm ring (29) to the widest aperture.

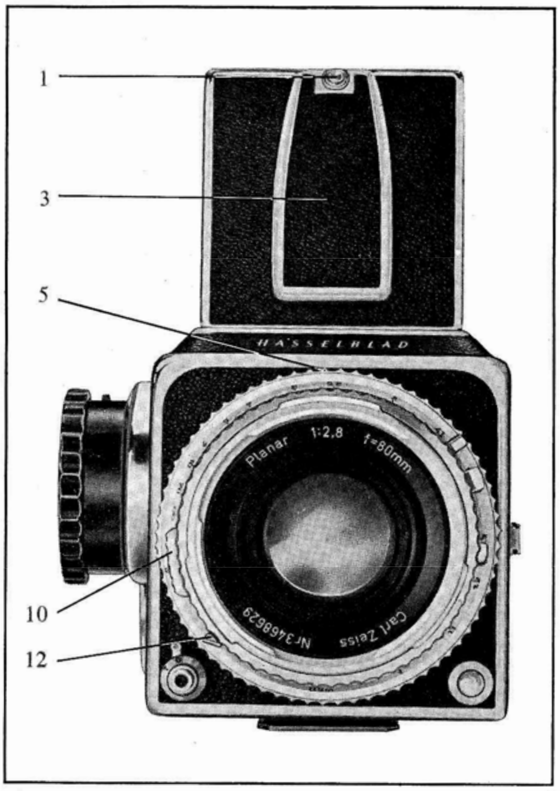


Fig. 6

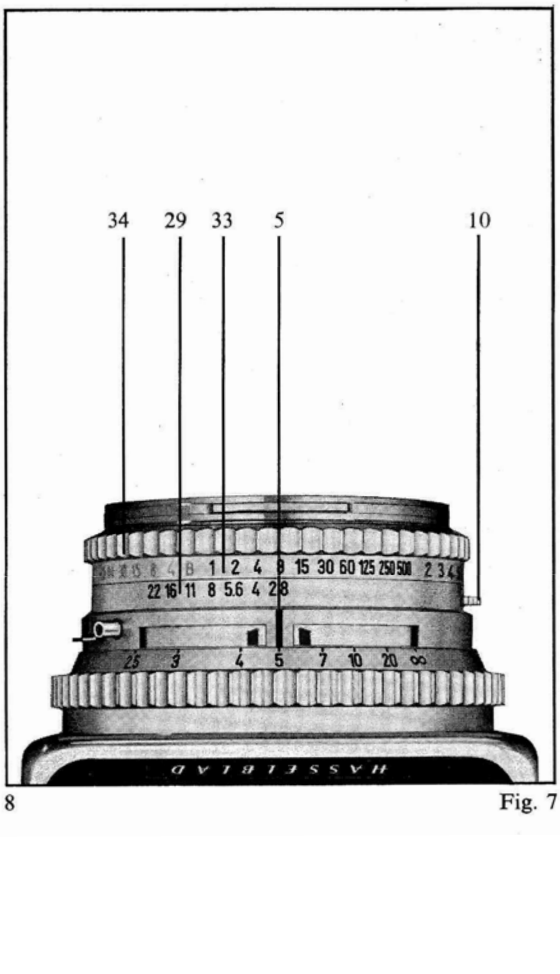


Fig. 7

Shutter speeds

Engraved on the speed ring (33) are three different scales, with black (white*), green and red figures respectively. The turning movement of this ring is restricted so that only the black (white*) figures and the green letter "B" can be set opposite the central index (5).

The scale of *black* (white*) figures indicates the exposure speeds from 1 sec. to 1/500 sec. In other words, the series 1 to 500 indicates the shutter times: 1, 1/2, 1/4, 1/8, 1/15, 1/30, 1/60, 1/125, 1/250 and 1/500 sec. These speeds are set by turning the grip ring (34) until the number wanted is opposite the central index (5).

The scale of *green* figures indicates the exposure times in seconds, and the "B" position is equivalent to 2 sec. The green scale is used as an aid in estimating manually-controlled exposure times when the lighting is so weak that the longest automatic shutter speed, 1 sec., is insufficient for an exposure (see Page 10, Example 2; and Fig. 9).

The *red* scale of figures is used when setting the exposure value.

**On black-barreled lenses.*

Exposure value

The speed scale (33) and the aperture scale (29) have the same divisions, so every number on the aperture scale is equivalent to a number on the speed scale. As mentioned previously, these two scales are coupled

together, but they can be disengaged by pressing the finger hold of the coupling (10, Fig. 8) backwards.
The aperture-and-speed combination which is set opposite the central index is the one which decides the exposure. Every one of such combinations is equivalent to an exposure value on the red scale (8).
The exposure value is ascertained from an exposure meter — for example, the Hasselblad exposure meter — and the value read off is set opposite the red index (9). When the exposure value is set on the camera, a correct exposure is obtained irrespective of which aperture and instantaneous speed combination is set opposite the central index (5) with grip ring (34). Remember, however that this does not apply to "B", which is manually-controlled and is not an instantaneous (or automatically set) speed.

Example

Example 1 (see Fig. 9). The exposure meter indicates an exposure value of 12. Set this number opposite the red index (9). This setting gives seven alternative aperture and speed combinations. Consequently, the entire aperture scale can be used with a choice of shutter speeds from 1/500 to 1/8 sec. In other words, the two scales (29 and 33) give the same combinations as the line marked in red in Fig. 9.

Longer exposure times

From exposure value 8 (and downward), the possibility of using instantaneous speeds becomes restricted. The green figures on the lens indicate the exposure times (in full seconds) for the respective aperture numbers which apply when the shutter is set at "B".

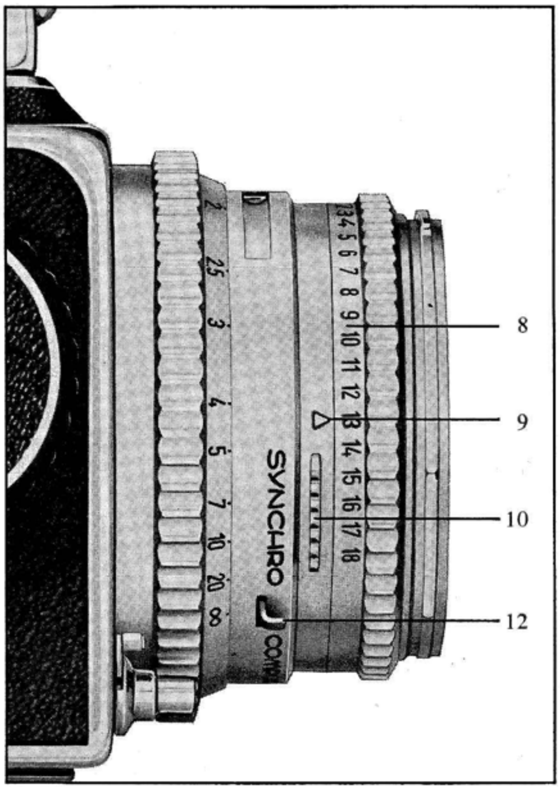


Fig. 8

B=2	Aperture 2,8	4	5,6	8	11	16	22
Exposure value 2	2	4	8	15	30	60	125
3	1	2	4	8	15	30	60
4	1/2	1	2	4	8	15	30
5	1/4	1/2	1	2	4	8	15
6	1/8	1/4	1/2	1	2	4	8
7	1/15	1/8	1/4	1/2	1	2	4
8	1/30	1/15	1/8	1/4	1/2	1	2
9	1/60	1/30	1/15	1/8	1/4	1/2	1
10	1/125	1/60	1/30	1/15	1/8	1/4	1/2
11	1/250	1/125	1/60	1/30	1/15	1/8	1/4
12	1/500	1/250	1/125	1/60	1/30	1/15	1/8
13		1/500	1/250	1/125	1/60	1/30	1/15
14			1/500	1/250	1/125	1/60	1/30
15				1/500	1/250	1/125	1/60
16					1/500	1/250	1/125
17						1/500	1/250
18							1/500

Fig. 9

Example

Example 2 (see Fig. 9). The exposure meter indicates an exposure value of 4, and this number is set opposite the red index (9). If aperture f. 4 is chosen, then the exposure time is 1 sec., and exposure is made automatically by the camera in the usual way (see numbers marked by squares in Fig. 9); but if a smaller aperture, say f. 11, has to be chosen for the sake of depth of field then read the number opposite f. 11 which, in this case, is 8 (see numbers marked by green circles in Fig. 9). Remember the number 8 as it indicates the number of seconds required for the exposure. Then set "B" opposite the central index and turn the diaphragm ring until the figure 11 (for aperture f. 11) is opposite the central index. When the shutter is set at "B" and the release button is pressed, the shutter remains open as long as the exposure impulse continues. In other words, for the example given above, the release button should be kept pressed for 8 seconds. Use a watch to calculate this time or count slowly to eight.
When color film is used with the longer exposure times (that is, longer than 1 sec.), a correction factor in the extension of the exposure time (reciprocity) must be taken into consideration, as well as for the color balance; these correction factors are stated by film manufacturers for all their films.

Focusing and depth of field

Turn the focusing ring (4, Fig. 10) until the subject appears as sharp as possible in the image on the ground glass screen. To check the zone of the depth of field, stop down the lens to the preset aperture by pressing the catch (12, Fig. 8). The smaller the aperture, the greater the zone of the depth of field (Fig. 11).

On the focusing ring is a distance scale (7, Fig. 10), and the distance from the camera's film plane to the subject (or object) focused upon is read off opposite the central index (5).

Depth-of-field indicator

The movable depth-of-field indicator (6, Fig. 10) simplifies distance setting. The depth of field at any particular aperture set is indicated by the depth-of-field indicator directly against the distance scale (7). And while the distance scale supplies information on the depth of field, the distance between camera and motif can be read off opposite the central index (5).

The depth-of-field indicator consists of two parallel, movable red pointers. The distance between the pointers changes when the aperture setting is changed. Large apertures reduce the depth of field (as indicated by the narrower distance between the pointers), while small apertures increase the depth of field (wider distance between the pointers.) See Fig. 11, in which the light circle shows the position of the pointers at the largest aperture (f. 2.8) and the heavy circle the position of the pointers at the smallest aperture (f. 22).

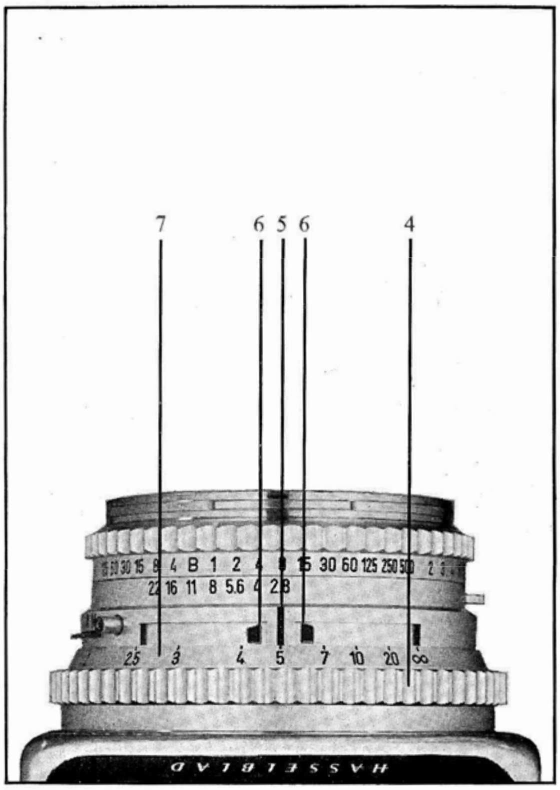


Fig. 10

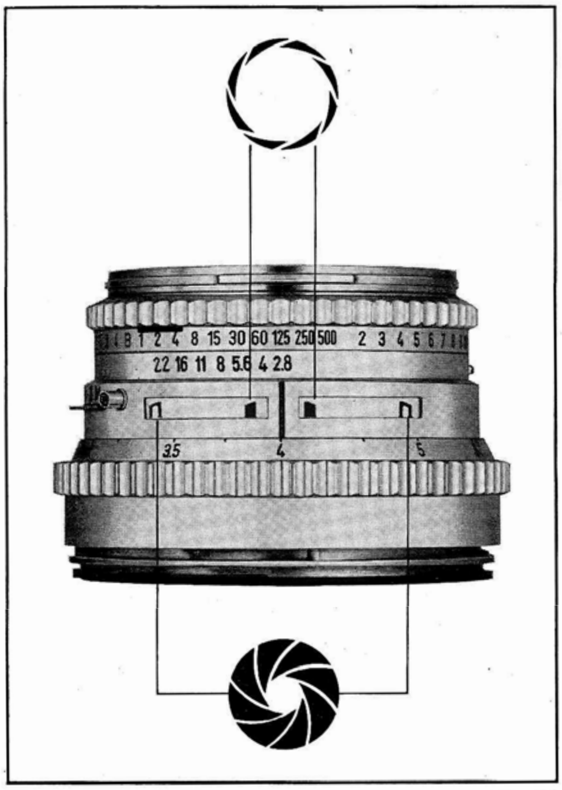


Fig. 11

Some tips on distance setting

A practical working method for locating the zone of a predetermined depth of field is to focus first on the near limit of the motif and to read the distance on the distance scale. Then take a similar reading of the far limit. After this, turn the focusing ring until the pointers reach toward the two readings (one on each side of the central index) on the distance scale; in this way, a good setting has been made. By making use of the depth-of-field indicator pointers, focusing can be carried out with greater accuracy.

When photographing a scene with movement in the foreground, it is an advantage at times to have the lens set at a predetermined distance; and then, as the movement takes place in the scene, to move the camera backwards or forwards in order to get a sharp image.

In sports photography, for example, when the action takes place within a certain depth-of-field zone, the pointers of the depth-of-field indicator can be preset at the desired depth.

Direct measuring and setting of the photographic distance, according to tables, is often a practical thing to do when a certain picture scale is desired; for example, when taking close-ups.

The Hasselblad quick-focusing handles, attached on the focusing ring, make focusing even easier. They are provided with movable index markers which can be positioned for different focusing points or depth-of-field settings.

Self-timer and flash synchronization

The lever for V, X and M (31, Fig. 12) is protected against accidental shifting by a spring catch (32). To move the lever: first press the catch forwards, move the lever, then release the catch.

Self-timer

The self-timer can be used for shutter speeds from 1/500 to 1 sec. To tension the self-timer: first tension the between-lens shutter by winding the knob; then push catch (32) forwards and move lever (31) to V; release catch (32); move the time lever (15) to T. To expose: press the release button; exposure takes place after an interval of about 8—10 sec. Then move the time lever (15) to 0 (this action permits the knob to be wound again). If flash is used with the self-timer, the effect is X-synchronization.

Flash-synchronization

The shutter is fully synchronized for X- and M-settings. The synchronizer contact (30) is of the coaxial type. The cable from flash to synchronizer contact is kept neatly out of the way by a special cable hook inserted at the cable-hook hole (38).

X-synchronization

In X-synchronization, the flash takes place when the shutter is fully opened. The X-setting is used for electronic flash at all shutter speeds, and for Class X and F flash bulbs at the slower shutter speeds.

M-synchronization

In M-synchronization, the shutter closes the flash-firing circuit slightly before it is fully open to catch the flash at maximum intensity. The M-setting is used for Class M flash bulbs at all shutter speeds.

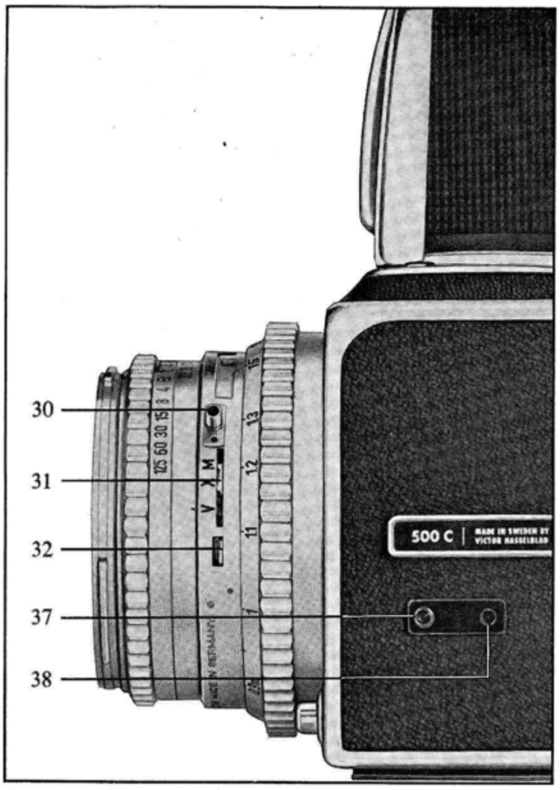
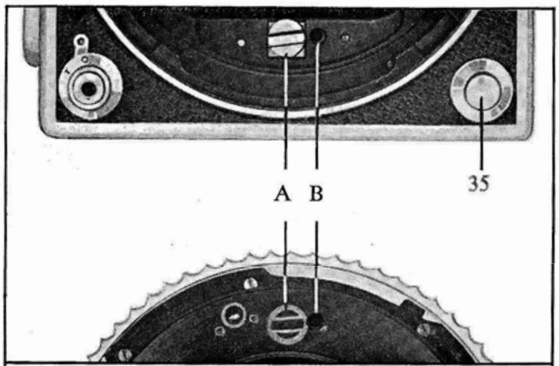


Fig. 12

Fig. 13



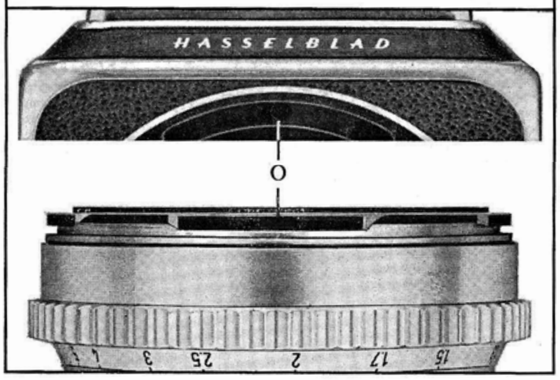


Fig. 14

Changing lenses

To remove the lens

First tension the between-lens shutter by winding the knob. Then hold the lens barrel firmly with the right hand, and the camera with the left hand. Press button (35) with the left index finger, and turn the lens barrel counter-clockwise until it stops (about one inch); the lens is now detached from the camera body.

Note: the release (17) must not be in the speed-up position.

Shutter tensioning

After an exposure, the shutter is tensioned with the knob (16) which also winds the film forward at the same time. If the lens has been separated from the camera body and the between-lens shutter released (i.e., closed), the shutter must be retensioned before the lens can be reattached to the camera body. The simplest way to check if the shutter is open is to look through the lens.

When the shutter is in the tensioned position, the slot of the tension shaft (A, Fig. 13) is in line with the red spot (B). If it is necessary to tension this shaft, use a small coin which fits the slot and make a complete turn, *clockwise*.

Attaching the lens

To attach the lens, insert the lens in the camera body with the red line on the rim of the lens exactly opposite the large red dot in the camera body — see O, Fig. 14 — and turn the lens barrel clockwise (about one inch) until it clicks into position.

THE CAMERA BODY

Ground glass screen

The ground glass screen (A, Fig. 15) which produces an image without parallax, is marked with a cross to simplify lining up of the horizontals and verticals in the picture. A mask can be laid on the screen when picture formats other than 2¼"×2¼" are used.

Mirror

The mirror reflects the lens image to the ground glass screen during focusing. It moves up automatically when an exposure is made.

Back plate of camera body

A ridge around the opening in the back plate fits into a groove around the front plate of the magazine (see Fig. 15). This ridge blocks stray light from entering the camera. The winding-movement from the knob for advancing the film is transmitted by the gearwheel (B). The catch against accidental double exposure and for the signal in the film-transport window (20) is worked by the pin (D). Keep (B) and (D) clean, so that dirt or dust do not affect their important functions.

Auxiliary shutter

The addition of an auxiliary shutter in a single-lens reflex camera allows interchangeable lenses with built-in between-lens shutters to be used. The auxiliary shutter consists of two vertically-moving flaps (C). It is closed when the mirror is in the down position (for focusing on the ground glass screen), or when the lens is being changed.

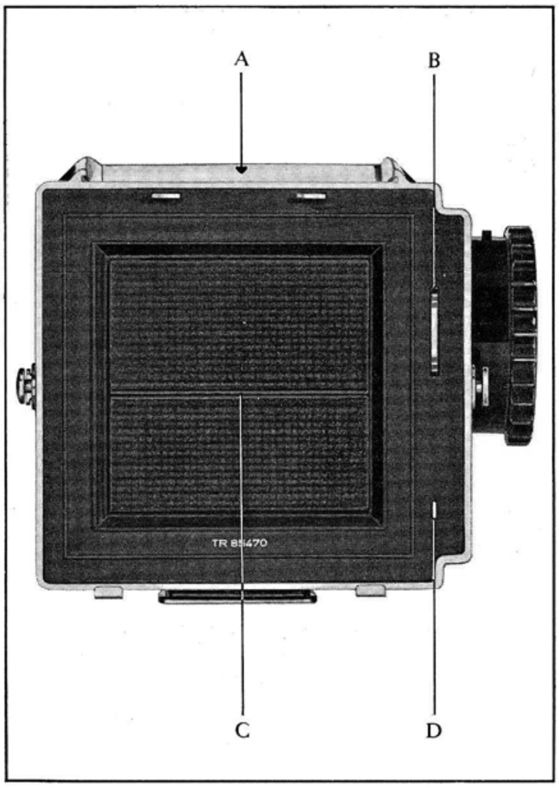


Fig. 15

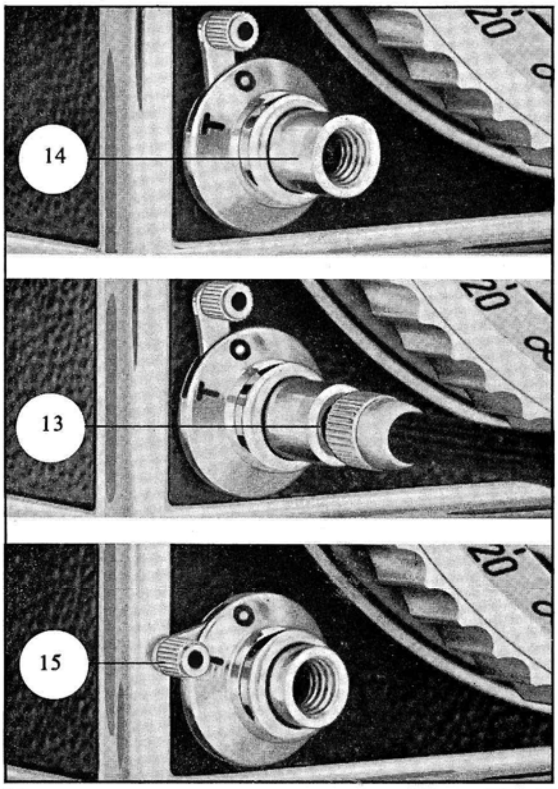


Fig. 16

Making an exposure

When the release button (14, Fig. 16) is pressed, an exposure is made. *The rule to follow in making all exposures (when the time-exposure catch (15) is in the O position) is to keep the release button depressed until the between-lens shutter completes the exposure. This is especially important when using shutter speeds from 1 sec. to 1/15 sec. If the button is released too soon, exposure is prematurely terminated by the closing of the auxiliary shutter.* A cable release, screwed into the socket (13), is useful when making long exposures.

Time catch

The time catch (15) has two positions: O and T (see Fig. 16). In the O position, the catch is disengaged; in the T position, the catch functions as a lock on the release button, which remains depressed until the catch is moved again to the O position. When making long exposures, with the B-setting opposite the central index (5), the T position can therefore be used advantage. *When the self-timer V is used, the time catch must be moved to the T position first in order to keep the release button depressed until the delayed exposure is completed.* Note that the film cannot be advanced by the winding knob (16) until the time catch is returned to the O position. The function of the time catch cannot be employed when using a cable release.

Speed-up exposures

By making use of the speed-up release (17, Fig. 17), the auxiliary shutter is opened in advance and the time between pressing the release button and the actual exposure is reduced to a minimum. It is unnecessary to keep the speed-up release pushed in until the actual exposure is made with the release button (14).

KNOB FOR FILM WINDING AND SHUTTER TENSIONING

The knob (16) has two functions: to advance the film to a new frame and to prepare the camera for an exposure by lowering the mirror (for focusing) and tensioning the between-lens shutter. These functions are carried out when the knob is given one complete, clockwise turn. Winding the knob also triggers the signals in the exposure and film-transport windows (19 and 20, Fig. 18). The windows can show the following signal-combinations:

1. Both signals White. Camera ready for exposure.

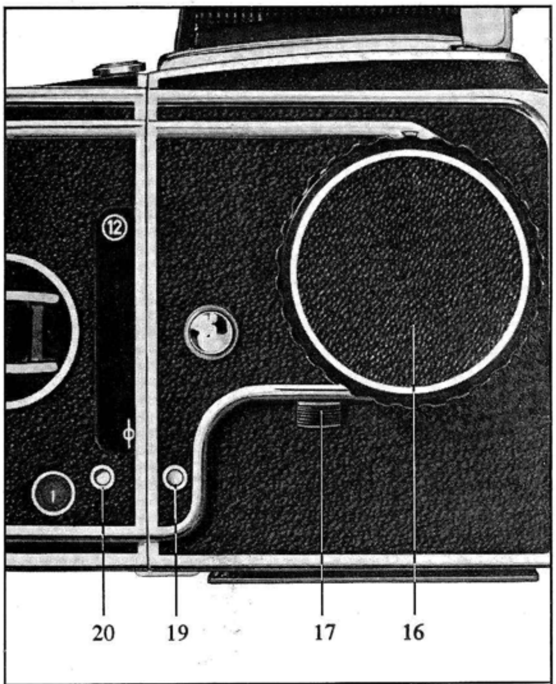
2. Both signals Red. The exposed frame has not been transported and the shutter is not tensioned. Wind the knob!

3. The film-transport signal (20) is Red and the exposure signal (19) is White. This indicates that the magazine has been attached to the tensioned camera with the last exposed frame still untransported. A double exposure will result if the shutter is now released. (This can be done deliberately, of course, if a double exposure is wanted.) To avoid a double exposure, however, detach the magazine again and press the release button to close the shutter.

4. The film-transport signal (20) is White and the exposure signal (19) is Red. This indicates that the magazine has been attached to the camera with a new frame in position but the shutter has not been tensioned. Detach the magazine again and wind the knob (16) to tension the shutter.

Rule: When attaching the magazine to the camera body, check that the signals in both windows show the same color.

Fig. 17



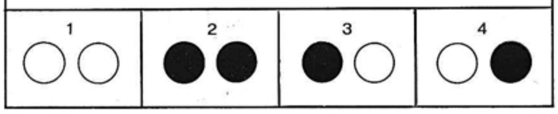


Fig. 18

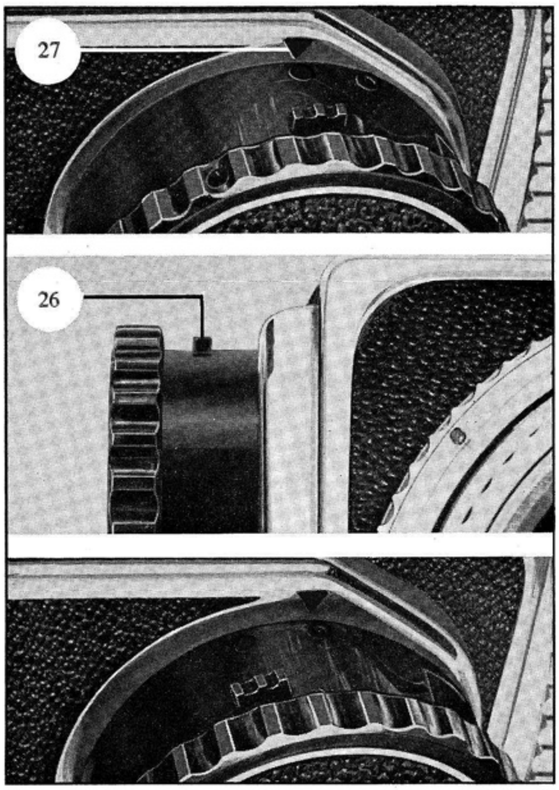


Fig. 19

Note

If the knob cannot be turned, the cause can be due to the following:

The last film frame has been exposed. When this takes place, the film counter in the window (21) shows a blank instead of a number and the exposure stop-catch has been released automatically.

The time catch (15) is at T and the button release has remained in the locked position (see Page 16).

The auxiliary shutter has been opened by the speed-up release (17) but the exposure has not yet been carried out (see Page 16).

To change the winding knob

The camera is supplied with an interchangeable knob which can be replaced by a knob with built-in exposure meter or a rapid winding crank. When the knob is attached to the camera body, the solid red dot on the knob is directly opposite the knob-positioning index, a red triangle (27), on the camera body; see Fig. 19 (top). To detach the knob, push the catch (26) opposite the red dot away from the camera and turn the knob slightly counter-clockwise. To attach the knob, press the knob against the camera with the red circle on the knob exactly opposite the red triangle — se Fig. 19 (bottom) — and turn the knob slightly clockwise until it clicks into position. Attaching and detaching is best done when the shutter is tensioned. Learn to do this without fumbling as the knob with the built-in exposure meter is often detached for measuring the light value of details.

FILM MAGAZINE

Changing magazines

Before the magazine is removed from the camera body, the magazine slide (41) must be inserted. Then push the magazine catch (28) to the right, tilt the magazine backwards and lift it from the magazine hooks (40).

The groove around the front plate of the magazine fits onto the ridge around the back plate of the camera body to make a light-tight seal. Magazine slide (41) protects the film against light when the magazine is removed. When changing the magazine, check that the two signal windows (19 and 20) show White.

Attach the magazine to the camera in the following manner: Fit the magazine onto the two lower hooks (40) and swing the upper part of the magazine against the protruding latches (A) while pushing the magazine catch (28) to the right. Release the magazine catch; and to make sure the magazine is locked into position, push the magazine catch to the left. Withdraw the magazine slide and the camera is ready for use. *Note these safety precautions: The magazine cannot be removed unless the magazine slide is inserted — an exposure cannot be made until the magazine slide is withdrawn after the magazine has been attached.*

Loading magazine A 12

The magazine can be loaded either when attached to or detached from the camera body. When loading an unattached magazine, the magazine slide (41) *must* be inserted — with its rolled-over handle-edge facing toward the camera front.

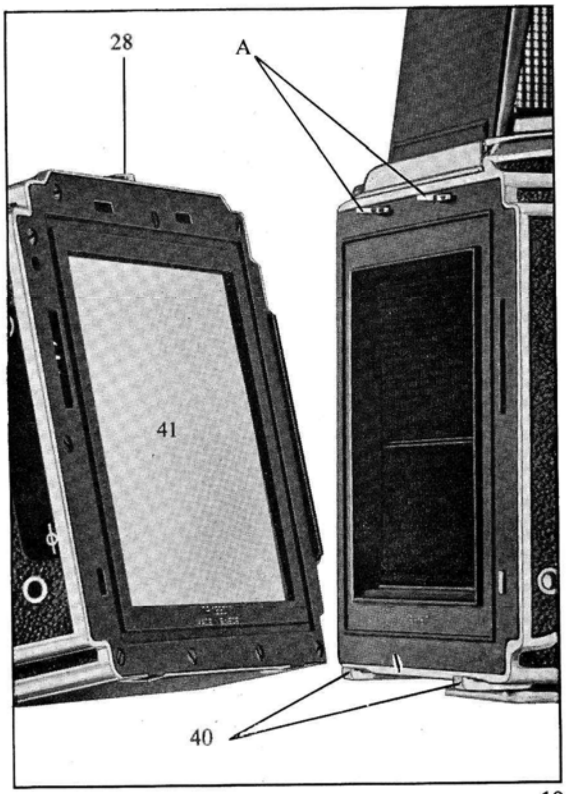


Fig. 20

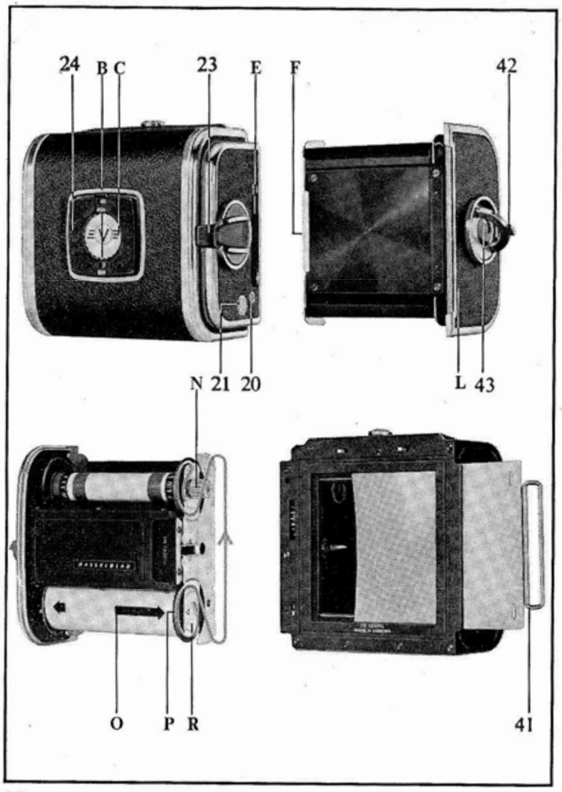


Fig. 21

Loading (see Fig. 21)

1. Fold out key (42), turn it counter-clockwise and pull out spool holder (L) from the magazine.

2. Turn key (42) clockwise; this releases film clamp (F).

3. Flip up the spool clips (N) and (R). Insert the take-up spool under clip (N); the one with the knurled knob. Insert the full roll under clip (R) with the film positioned as shown in the third photo of Fig. 21.

4. Pull out about four or five inches of the protective backing paper and guide its edge under the film clamp (F).

5. Insert the end of the backing paper in the take-up spool. Turn the knurled knob until the double-pointed arrow (O) printed on the backing paper is opposite the arrow-sign (P) on clip (R).

6. Turn key (42) counter-clockwise to keep the backing paper in position by the film clamp (F).

7. Holding the spool holder by key (42), insert the holder fully into the magazine and lock it by turning key (42) clockwise. This action also opens film clamp (F). Fold down key (42).

8. Fold out the rapid-winding crank (23) and turn it clockwise until it stops (about 10 turns). The figure "1" is now visible in the film-counter window (21). Give the crank a reverse turn and fold it into the closed position again; see first photo, Fig. 21. The prepared magazine is now ready for use.

Final winding

After the twelfth frame has been exposed and wound onto the take-up spool, the exposure stop-catch func-

tions automatically. Fold out crank (23) and wind the remainder of the film onto the take-up spool.

General

The rapid-winding crank (23) is only locked at frame "1". The film counter automatically returns to "0" when the spool holder is extracted.

At the center of key (42) is a White-Red indicator (43). This indicator is completely white when no film is exposed. Every successive exposure shifts the indicator bar from white to red. After the twelfth exposure, the indicator is completely red.

The film-plane marking (22) is shown on the side panel (E).

At (24) is a film type-and-speed indicator. To indicate the speed of the film in the magazine, flip open cover (24), which opens downwards, and turn the serrated ring (C) with the finger-tip to the appropriate ASA or DIN setting. A piece of paper, or the top torn from the empty film container, can be inserted under the indicator cover to show the type of film loaded in the magazine.

ACCESSORY BRACKETS AND FIXTURES

Bayonet fittings on lens

The front of the Planar 80 lens is fitted with an inner bayonet fitting for filters and supplementary lenses, and an outer bayonet fitting for the lens-shade and ringlight (see Fig. 22 and 23).

Tripod bracket

The plate under the camera has two tripod bushings (respectively: ¼" W and ⅜" W), and it also functions as a quick attachment shoe (see Fig. 24).

Fig. 22

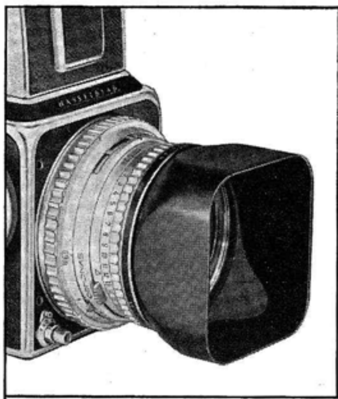


Fig. 23



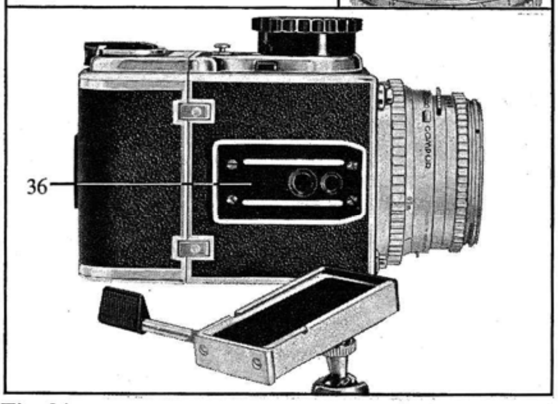


Fig. 24

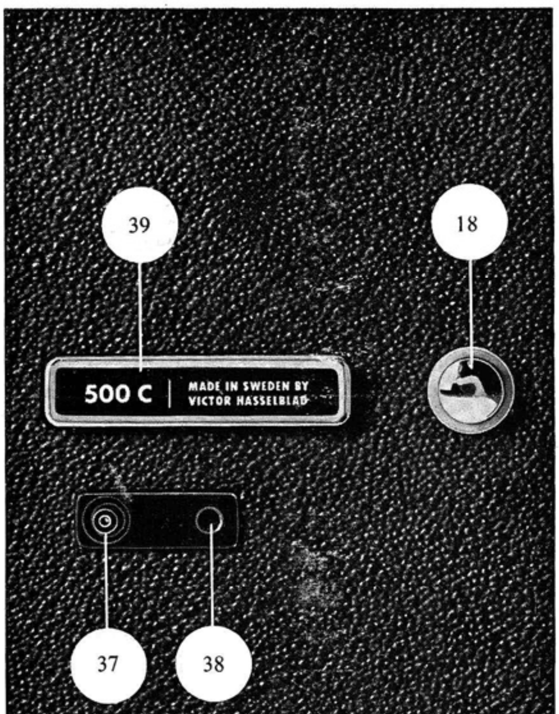


Fig. 25

Strap buttons

The carrying strap is attached to the camera at the strap buttons (18, see Fig. 25) on both sides of the camera. Safety catches prevent the strap from coming off accidentally. To remove the strap, lift the spring catches and push the buckles upwards at an angle.

Hole for cable-hook

The cable hook, to keep the synchronizing cable in position, is inserted in the hole (38). To extract the hook, pull it straight out.

Accessory socket

This socket (39) is used as an attachment for several accessories, such as the sports viewfinder, spirit level and adjustable flash shoe.

GUARANTEE

Your Hasselblad camera is made in Göteborg, Sweden. It is a quality product and therefore covered by a manufacturer's guarantee against faulty materials or workmanship for a period of one year. *Send us the enclosed registration card as soon as you receive your camera.* Print your name and address. Upon receipt of your registration card, we will send you our guarantee card and add your name to our directory of Hasselblad camera-owners. This means that you will be supplied regularly with all the new folders and booklets, etc., which we print every year. The above guarantee does not cover damage to the camera caused by careless handling. Transport charges to and from the nearest Hasselblad authorized service workshop are to be defrayed by the camera owner.

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